

HEALTH PATHWAYS

Newsletter of the Health Professions Career Opportunity Program

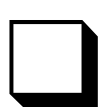
April 2001

Volume 23, No. 15

In this issue... CAREERS IN MEDICINE: *A Guide for High School Students*

 **Memory Techniques**

 **Student Clinics**

 **Profile:**
Laura Williams,
M.D., M.P.H.

 **Critical Care Nursing**

Good preparation is a fundamental component of successfully reaching your career goals. The process begins when you first establish what you want to do with your career. *Deciding* to go into the medical field is the first step of a long, yet rewarding, journey. The earlier you begin to prepare, the easier your journey will be!

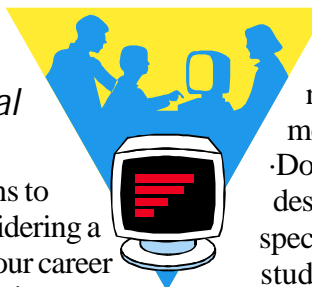
This guide is a beneficial resource for those who have already decided to pursue this journey, as well as for those still undecided. This is *part two* of *A Guide for High School Students*. The first part was featured in the last issue of *Health Pathways* which is available on our web site: www.oshpd.state.ca.us/pcrcd/professions/hpcop.htm.

Part II:

How Do I Select the Right School for My Premedical Education?

Here are some questions to ask yourself when considering a college or university. Your career guidance counselor or science teacher can help you find the answers. You also should consult the many college guidebooks found in your school's guidance office, local libraries, and bookstores.

- Does the school have a good faculty and a reputation for high academic standards? Is it accredited?
- Does it offer a broad range of courses in the humanities as well as the social, behavioral, and natural sciences?
- Does it have strong science departments with good laboratory facilities?



- Does it offer all of the required courses I need for acceptance to medical school?
- Does the college have a designated advisor specifically trained to help students interested in the health professions?
- Does the school have a good track record for having its students accepted to medical school?
- Are there programs to do volunteer work at local hospitals or clinics?
- Are there programs where I can demonstrate leadership and compassion?
- Does the campus "feel right" for me? Am I comfortable with its size, location, social life, and general atmosphere?
- Is it affordable for me and my family?



Do your part to help California Save Energy.
For energy saving tips,
visit the governor's web site at
www.ca.gov

(See *High School* on page 14)



How We Can Remember: 8 Basic Memory Principles



1. Motivated Interest

Have a positive mind set so that you become interested in the material you have to study. It is hard to remember boring material.

2. Selectivity

Realize that you cannot remember everything. You must be selective as to what are the key points to be learned, since overloading your memory is not effective. You must make decisions as to what is significant and must be understood and what is just an interesting detail that can be forgotten. This decision making is part of the learning process. You will improve with practice.



3. Intention to Remember

Merely hoping to remember will not make it so! You must intend to remember so that you will pay attention, get it right the first time while striving for accuracy and not speed.

4. Basic Background

To help yourself remember new material, try to associate it with something you already know. Your background expands as you take more courses, read, and grow.

5. Meaningful Organization

It is difficult to remember isolated facts. Therefore, set up categories that are meaningful to you. Through the power of association, tie in new information with already learned material. Organize facts into related sets, always noting

similarities in ideas and concepts, and put them within a larger system or framework. Items then are learned in meaningful bunches.

6. Recitation

The most efficient way of transferring information from short-term (easily forgotten) to long-term memory is through recitation. Saying out loud the significant facts you intend to remember works for a number of reasons. First, you will be more motivated to understand the material. Secondly, recitation acts as a progress report—you can see how accurately you are learning the material. Thirdly, it is a form of immediate review that includes physical activities in the learning process—thinking, pronouncing, and hearing all help reinforce the neural trace in your brain. It is important to recite in your own words—not the author's.

7. Consolidation

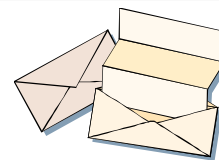
Learning activities such as writing, underlining, re-reading, and reciting all help to focus in on what you want to remember. Long-term memory needs at least 10 seconds to strengthen or consolidate the data you want to store for future use.

8. Spaced Practice

In general, try to study in shorter, but more frequent periods of time. Motivation will be higher, fatigue prevented, and the learning process will carry over even during the rest periods.



Source: UC Riverside The Learning Center



Do you have a story or suggestion for *Health Pathways*? We welcome your contributions. Mail us your ideas, letters, or articles today! Announcements of scheduled events need to be sent to us at least six months in advance to appear in the newsletter. Be sure to include your name and address on all correspondence. The Health Professions Career Opportunity Program (HPCOP) retains the right to edit all materials. Contact us at:

HPCOP

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Views of contributing writers do not necessarily reflect the policy of the department, agency, or administration. Letters to the editor are encouraged. Although we do not pay for guest articles, manuscripts are welcome. We reserve the right to edit all material.

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CLINICS ACROSS THE NATION

By Howard Bell

No one knows for sure how many student-run free clinics operate in the United States, but Jeffrey Tom wants to find out and get them all connected—well, at least talking to one another. A second-year medical student from Tufts University and board member at Boston's Sharewood Project, Tom begins this connection project with a Web site listing nationwide student-run free clinic contacts and resources (visit members.xoom.com/StudClinics). He also initiated the Medical Student-run Clinics of America (MSCA).

"Eventually, we'd like to create a standard model for student-run clinics," Tom says. By next spring, he hopes to flesh-out his MSCA Web site to include how-to tips and resources for students who want to start a clinic. So far, the MSCA Web site lists 13 clinics—all university-affiliated. He thinks there are around 20 student-run free clinics operating nationwide.

Allegra Melillo suspects there are more. A third-year medical student at Baylor College of Medicine in Houston, Melillo somehow found time to create the HOMES student-run free clinic. "I really felt something was missing from my medical education," she says. "Getting involved with the community was something I really wanted to do to round things out."

At HOMES, students eat meals with their homeless patients. "It breaks down barriers," Melillo says. After the clinic closes,

students meet with a psychologist and a family physician to discuss the experiences of the day and reflect on issues like the homeless, access to health care, and how they, as health-care professionals, can make a difference. "It enriches us personally as well as technically," she says.



Some clinics, like HOMES and Sharewood, are run entirely by students. Other student-run clinics are part of medical departments. Students' participation at the clinics varies. At St. Vincent's Free Clinic in Galveston, Texas, students

do nearly all procedures and treatments while overseen by a physician. At minimum, all student-run free clinics teach students how to interview patients, give shots, and change dressings.

The University of Chicago's Washington Park Clinic targets underprivileged children and is run entirely by first- and second-year students, who do some patient care under the guidance of a physician preceptor.

Hispanics are the primary patient population at the Imani Clinic at the University of California-Davis, where even premedical students volunteer along with medical students.

Philadelphia's United Community Clinic targets uninsured inner-city African Americans. Here, medical students work on community health and education projects.

Their patient visits have quadrupled to more than 400 per year since it opened in 1996.

University of Kentucky (UK) medical students volunteer at the Salvation Army Free Clinic in Lexington. Students there provide some medical care with physician oversight but are equally involved in social issues—educating the uninsured and underinsured about child care and family budgeting, for example. The clinic's goal, according to Mike Schafer, first-year UK medical student, is to create a clinic nationally recognized not only for patient care but for community service and teaching as well.

"Working at the clinic is a great reminder that medicine is not all about business and money, but most importantly about meeting needs of those most vulnerable," Schafer says.

Free clinics are training grounds for practicing teamwork medicine which is how it's practiced in the real world but seldom taught in school. "At HOMES clinic, social workers, pharmacists, technicians, and physicians work together," Melillo says. "But in school, we don't get training in a multidisciplinary practice setting." Working in a free clinic also teaches practical business skills needed to manage a clinic. "It puts us a step ahead when it's time to go out and practice," she says.

For these reasons, student-run free clinics are superb training



(See *Clinics* on page 15)

Laura Williams, M.D., M.P.H

Devotes Career to Native American Health Care

By Andrea Alvarez
HPCOP Staff Writer

Laura Williams, M.D. once again has caught the attention of *Health Pathways*!

First introduced back in the summer of 1990, Laura Williams was then a third-year medical student at Tufts University. Since 1990, a decade of advancements and accomplishments has earned Dr. Williams an M.D. and an M.P.H.

But, it wasn't only her academic success that caught our attention. It was Dr. Williams' use of opportunity and her ambition to promote Native American health care that made us certain this success story would be of use to others.

Back in 1990, Dr. Williams had established goals of earning a family practice residency in California, attaining a Masters degree in Public Health, practicing in an Indian Health Clinic in California, and joining with the legislature to advocate for minority health care issues. Today, Dr. Williams has not only met those goals, but exceeded them way beyond expectation.

Dr. Williams currently serves as Assistant Clinical Professor at UC Irvine College of Medicine and as Director of Community Medicine and Outreach to Special Populations at UC Irvine's Family Health Center. Also, she supervises 36 residents and mentors medical and undergraduate students.



"[Native Americans] represent 'the invisible minority' and are under-advocated-for and under-served..."

--Dr. Williams

In addition, Dr. Williams holds highly respected positions with the Association of American Indian Physicians (AAIP), the State of California's Department of Health and Human Services Indian Health Policy Panel, the Native American Preparatory School (NAPS) Board of Directors, the Inter-Cultural Cancer Council Advisory Board, and the State of California's Breast and Cervical Cancer Public Education and Outreach Advisory Board.

Dr. Williams is an active member of the Society of Teachers of Family Medicine, the American Academy of Family Physicians,

and the Association of American Indian Physicians.

Dr. Williams authored/co-authored several books on community health issues and wrote articles for the *Orange County Register* and the Juaneno Band of Mission Indian Newsletter. Dr. Williams even provided interviews and public service announcements for National Public Radio.

This coincided with her efforts to arrange and negotiate contracts, grants, and awards for Native American health care and breast and cervical cancer awareness and prevention. For example, acting as Director of Health Promotion/Disease Prevention and Grant writer, Dr. Williams obtained a contract of \$457,000 from the State of California Department of Health and Human Services American Indian Health Program, for the Support of Southern California Indian Center Mobile Clinic and Wellness Project.

So how, after accomplishing all this, does one person continue his/her commitment to serving the community?

According to Dr. Williams, out of the entire Native American population, 70 percent are urban and receive poor to fair health care depending on the type of system they have available to them. "They represent 'the invisible minority' and are under-advocated-for and under-served, receiving barely over

2 percent of the health care budget,” said Dr. Williams.

She added that the urban Indian population currently is without a free standing clinic. The lack of a clinic raised issues that are being addressed by the Southern California American Indian Health Working Group--an organization Dr. Williams established in collaboration with several groups interested in Indian health.

With that, it is obvious Dr. Williams’ role in the community will continue.

In addition to her other accomplishments, Dr. Williams was the first California Indian woman from the Juaneno-Acjachamen Nation to become a physician. Also, she was the first California Indian woman physician to become a faculty member in the UC system, and founded the first mobile wellness unit for Urban Indians in Los Angeles and Orange

County in collaboration with the Southern California Indian Center. Dr. Williams’ alliance with Native American health care goes beyond administrative issues and touches cultural entities within the Native American society as well.

“...I have a broader audience and can make a bigger difference...”
--Dr. Williams

For those pursuing a medical career, Dr. Williams demonstrates that restricting your career to one specific element within health care is difficult. A new opportunity can lead to a wide variety of possibilities for your career. A single career advancement can offer networking possibilities, opportunity for travel, and a new perspective of the industry.

Becoming aware of the relationship between the administrative and personal aspects

of a particular group’s health care system allows for a better analysis of the problems, resulting in a more informed perspective when faced with these problems.

The more aspects of health care with which one is familiar, the more valuable one will be to the community. Dr. Williams is a great example of the many different ways a medical professional can serve the community.

“I believe that by participating in academia I have the opportunity to educate medical students, residents and other faculty members about the health needs of Native Americans. I have a broader audience and can make a bigger difference. Native American patients are more likely to be taken care of by non-Indian Health Professionals; therefore, participating in their early education makes a difference for Indian people,” said Dr. Williams.



WWW SITES RELATED TO HEALTH PROFESSIONS



DENTISTRY

The American Dental Association
<http://www.ada.org/index.html>

MEDICINE

The Independent Stanford Medical Student Website
<http://medworld.stanford.edu/medworld/home/index.html>

The Medical School Interview
<http://av.yahoo.com/bin/query?p=%22medical+school+interview%22&hc+0&hs>

The Association of American Medical Colleges (AAMC) Lists

of USA accredited medical schools
<http://www.aamc.org>

The American Medical College Application Service (AMCAS)
<http://www.aamc.org/stuapps/admiss/amcas/start.htm>

The Medical College Admission Test (MCAT):
<http://www.aamc.org/stuapps/admss/mcat/start.htm>

The American Medical Student Association (AMSA)
<http://www.amsa.org>

NURSING

Nursing Links
<http://www.nursingworld.org/mindex/index.htm>

Nursing World
<http://www.nursingworld.org/>

OSTEOPATHIC MEDICINE
American Association of Colleges of Osteopathic Medicine
<http://www.aacom.org/>

The Student Osteopathic Medical Association (SOMA)
<http://kobiljak.mus.edu/soma/index.html>

The Student Experience

Before You Apply to Medical School...

...Get to know your professors. Try to go to office hours in those classes that offer them. You'd be surprised how much your professors are willing to talk to you about their class. Getting to know your professors will be beneficial both short- and long-term; you'll almost certainly do better in the class, and you've made a valuable contact for research or a recommendation. This brings up another point: find a subject that interests you, and do research in it. Research experience and/or publications help you a great deal in virtually any pursuit you follow after graduation. Also, keep in mind your research doesn't have to be in science. Again, talking to your professors will help a lot with this.

...Get some clinical experience. When you apply to medical school, admissions officers want evidence that you have a good idea of what you're getting into. Getting clinical experience in medicine will also help you either confirm your desire to be a doctor, or make you realize that this really isn't what you want to spend your life doing. The more in-depth the clinical experience, the better, i.e., working as an EMT or scrubbing on surgeries generally is better than a minimal time commitment observation-type experience. Also, volunteer work in some area outside of medicine is a good idea. It's much better to show the admissions committee

that you're committed to helping others than to claim it in your essay or interview.

...Develop your talents.

Is there something you do well or something you really enjoy? It could be music or art or tennis or poetry. Any skill that you can develop makes you unique. This will make you stand out in a crowd of applicants because you will be a more interesting person. As far as clubs and activities, sure, you can join things that you feel will make you "look good;" but you'll be doing the same thing as the other 8 zillion premed hopefuls, and you may not even enjoy it. It's a much better idea to find something that you really care about, and get deeply involved in it. You'll find that you have a better time doing this, and admissions committees will like the fact that you're not a cookie-cutter premed.

...Get to know folks who are farther into the application process than you are.

Your colleagues that are applying ahead of you can be a great resource. Listen to and learn from their concerns. One way to do this is by joining a premed group, although it's certainly not absolutely necessary.

...Learn to speak in front of a group. This is of incredible value. It will make your interview a hundred times better. Try to get involved in things that force you to interact with a wide variety of people. Those interpersonal skills will be quite handy at interview

time and will teach you how to present yourself in a positive light. Learn especially how to defuse arguments and how to stay calm under pressure.

...Get a broad-based education. Your time before medical school may be the last chance you have in life to really explore things outside your career interest. You'll have plenty of science in medical school. Besides, a familiarity with a broad variety of topics will help greatly with your interpersonal skills. It's an enormous asset to talk in-depth about some subject outside of medicine.

...Major in anything you want. There's no restriction on what your major can be prior to med school.

Just so long as you take the required courses (which are listed for each school in Medical School Admission Requirements, available in most good bookstores), you're fine.

...Don't discuss your grades/MCAT scores with other folks who are applying during the same year. Everybody hates this. Not discussing your number makes it less of a competition, and you can help rather than compete with your fellow students. In the stress of medical school application, it's much nicer to have allies than adversaries.

Permission to Reprint: The National Association of Advisors for the Health Professions Newsletter, Between Issues, July 1999.



HCTP

Health Careers Training Program



Dietitians and Dietetic Technicians



DIETITIANS and DIETETIC TECHNICIANS use nutritional science to promote healthy eating habits. Menu planning, supervision of food preparation, sales, diet therapy, nutrition research, counseling, and education are all within the realm of the dietetic professional. Dietitians tend to specialize in five main areas.

Clinical Dietitians work in hospitals, nursing homes, and other health care facilities. They plan and supervise the preparation of meals for patients, and confer with physicians and other medical professionals about each patient's nutritional needs and preferences. They may coordinate diet therapy and nutritional education programs, including teaching patients and their families about specific diets to be followed. They may also instruct groups or individuals about the nutritional care of conditions such as diabetes, obesity, and pregnancy. Some Dietitians make nutritional presentations to medical professionals.

Management Dietitians plan, coordinate, and supervise the planning, purchase, and preparation of food for institutions such as hospitals, schools, cafeterias, and restaurants. They select, train, and supervise staff members, including paraprofessional Dietetic

Technicians. They also enforce safety and sanitation standards, and prepare budgets and status reports. In smaller facilities, one person may serve as both Management and Clinical Dietitian.

Research Dietitians study nutrition, foods, and food service. They seek to answer critical nutrition questions and research alternative foods. They may also help develop dietary recommendations.

Community Dietitians mainly work in government or for health agencies. They teach the basic rules of good nutrition and help at-risk groups such as senior citizens, pregnant women, children, the disabled, and the poor improve their eating behavior. They may work in senior citizen feeding programs, school lunch programs, health departments, and day-care centers.

Consultant Dietitians work under contract with health-care facilities or in private practice. They may counsel patients, advise commercial and food enterprises, test new food products and equipment, and develop new recipes and menus for independent food service operations. Dietitians in private practice perform nutritional screening and assessments on their own patients or those referred by a physician.

Other clients may include athletes, company employees, and nursing home residents.

Dietetic Technicians are trained food and nutrition practitioners who work closely with Dietitians. Their primary task is to assist the Dietitian in developing nutritional care plans, assess dietary needs, and supervise food productions in institutions such as prisons, daycare centers, and schools.

Dietitians and technicians should apply directly to hospitals, skilled nursing facilities, the Veterans Administration, schools, colleges, universities, public health agencies, research foundations, and private companies with food service operations, including airlines. Jobs for Dietitians are listed in newspapers, magazines, and with employment agencies. Some Dietitians are officers in the Armed Forces.

Applicants should register with college placement offices, the Employment Development Department's Job Service division, and make contact with the California Dietetic Association.

Source: State of California, Employment Development Department, Labor Market Information Division, Information Services Group, (916) 262-2162.



As part of the Health Careers Training Program's attempt to provide you with information regarding allied health occupations, each issue will focus on at least one allied health profession and will include specific information regarding: job duties, working conditions, employment trends, salaries, entrance requirements, and advancement opportunities.

CARDIOLOGY TECHNOLOGISTS

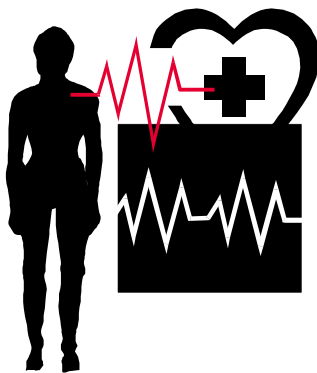
Fact.....Fact.....Fact.....

Heart surgeries, excluding heart transplants, have increased from 196,000 in 1980 to 839,000 in 1991, cited Parade Magazine from its source: National Hospital Discharge Survey, 1991. The maturing of American baby boomers increases the potential for one of the highest causes of death, heart disease, which may raise the total number of heart surgeries.

What They Do

Cardiology Technologists conduct tests of pulmonary and/or cardiovascular systems of patients to diagnose pulmonary and/or cardiovascular disorders.

Cardiopulmonary Technologists perform diagnostic tests of cardiovascular and pulmonary systems of patients to aid physicians in diagnosis and treatment of heart, lung, and blood vessel disorders. They prepare patients for tests and explain procedures to obtain cooperation and reassure patients. Technologists conduct electrocardiogram, phonocardiogram, echocardiogram, stress testing, and other tests to aid in the diagnosis of the patient's cardiovascular system. They use a variety of specialized electronic test equipment, recording devices, and laboratory instruments to aid physicians in diagnosis of pulmonary disorders. Technologists



measure and record functions of cardiovascular and pulmonary systems of patients during cardiac catheterization. They also alert physicians to instrument readings outside normal ranges during the procedures and provide test results to the physicians.

Skills

- Ability to perform diagnostic tests of patients' cardiovascular and pulmonary systems.
- Ability to aid physicians in diagnosis and treatment of heart, lung, and blood vessel disorders.

Stress Test Technicians produce recordings of electromotive variations in the action of the heart muscle, using an electrocardiograph, while the patient walks on a treadmill under the direction of a physician. The technician attaches electrodes to patient's arms, legs, and chest area, according to a specified pattern, and connects electrode leads to an electrocardiograph, to obtain the electrocardiogram.

The technician explains the procedure to the patient and obtains a consent form from him/her. During the procedure, the technician stands alongside the patient to lend support if necessary. After the procedure is completed, the technician records the data and informs the physician of any wave abnormalities on the electrocardiogram.

Skills

- Know how to produce recordings of electromotive variations in heart muscle action using electrocardiograph while patient walks on treadmill under the direction of a physician.
- Ability to provide required data to help physician diagnose heart ailments.
- Knowledge of EKG procedures and equipment.
- Knowledge of basic cardiac life support.

Training Requirements

- High School diploma or equivalent with courses in Anatomy and Physiology.
- May need a one-year certificate from an accredited Junior College, Technical School, or Vocational School.

(See *Cardio Techs*, on page 10)

HOLTER SCANNING TECHNICIANS

Fact.....Fact.....Fact.....

Among the ten leading causes of death in California in 1992, heart disease was ranked the highest. A total of 66,668 Californians died from heart disease, as reported by the California State Department of Health Services. Since California's baby boomers are aging, an increase in the number of patients suffering from heart disease is probable. An increase in patients with heart disease may create a demand for Holter Scanning Technicians.

What They Do

Holter Scanning Technicians or *Holter Technicians* analyze data from a cardiac-function monitoring device (Holter monitor) worn by patients for use in diagnosis of cardiovascular disorders. The Holter monitor and scanner produce audio and visual representation of heart activity. The Holter Scanning Technician observes the scanner screen to identify irregularities in patient cardiac patterns. He/she uses knowledge of regular and irregular cardiac-function patterns, or verifies data provided by computer program that automatically scans, analyzes, identifies, and prints irregular heart patterns. Holter Scanning Technicians print sections of abnormal heart patterns or full disclosure tapes for the physician. They also analyze information in the patient's diary to identify incidents that correspond

to heart pattern irregularities detected on the heart monitor as well as record findings on a report to be sent with tapes, patient diary, and printouts of heart patterns to the interpreting physician.

Skills

- Have good mechanical aptitude.
- Ability to follow directions.
- Capable of performing under pressure.
- Treat sick or nervous patients in a pleasant and reassuring manner.
- Ability to use computerized equipment desirable.
- Knowledge of cardiopulmonary resuscitation, first aid, and basic cardiac life support.

Training Requirements

- High School diploma or equivalent.
- Courses in English, Health, Biology, and Typing are recommended.
- One- and two-year certificate programs are available from Vocational, Technical, and Junior Colleges (only a few have received full accreditation).
- Hospitals usually train new Technicians to perform their duties.

—Some hospitals in California require Technicians to be licensed.

—Licensing is available from the National Board of Cardiovascular Testing.

Employment Outlook

This occupation is one of a group of health care professions and paraprofessionals estimated to grow over 40 percent from 1990 through the year 2005.

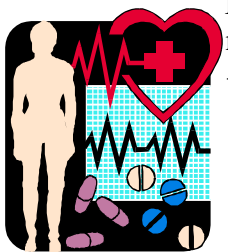
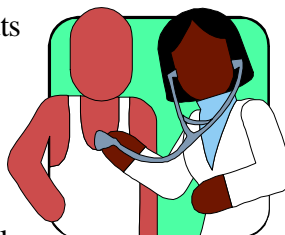
Annual Wage

The average annual salary for Holter Scanning Technicians in 1993 was \$20,600 for Technicians working in selected western states.

Related Occupations

- Non-Invasive Cardio Technicians.
- Radiographers.

Source: State of California, Employment Development Department, Labor Market Information Division, Information Services Group, (916) 262-2162.



\$100,000 for Retail Pharmacy Students Attending Historically Black Colleges and Universities (HBCUs)

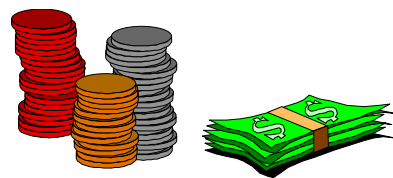
A new scholarship program sounds like the right prescription for attracting more African-Americans into retail pharmacy. In March, Rite Aid Corporation and the United Negro College Fund announced the Retail Pharmacy Scholars Program—the first to be underwritten by a major corporation and designed to encourage more African-Americans to consider a career in retail pharmacy. The program hopes to bring more qualified pharmacists to Rite Aid stores.

A total of \$100,000 will be distributed over the next four years to students attending Historically Black Colleges and Universities. Selected students will receive annual scholarships of \$2,500. Students must demonstrate financial need and maintain at least a 2.8 GPA.

For details, visit the Rite Aid Web site at:

http://www.riteaid.com/company_info/pr/pr_frameset.html

Permission to Reprint: Office of Minority Health, Closing the Gap, May/June 1999.



Medical Interpreter Resources

- ❖ Resources for Cross Cultural Health Care has a resource guide for medical interpretation services on its website. Go to <http://www.Diversityrx.org> or call (301) 588-6051.
- ❖ The National Council on Interpretation in Health Care (NCIHC) has an email discussion group. Participants can raise issues, ask questions, share information and resources and network with each other around topics related to medical interpretation and access to health-care services for limited English proficient persons. NCIHC-list is open to anyone with an interest in these issues. To subscribe to the NCIHC-list, send an email to: NCIHC-list@diversityRx.org.

(Cardio Techs from page 8)

- May need a two-year Associate Degree from an accredited Junior College, Technical School, or Vocational School.
- Some employers prefer to train people already in the health care field.
- Certification is not required, but it is available through the National Board of Cardiovascular Testing.

Hourly Wage

Wage information for this occupation is very sparse. A recent survey in the San Francisco Bay Area reported an average of \$14.00 an hour. No other information is available.

Source: State of California, Employment Development Department, Labor Market Information Division, Information Services Group, (916) 262-2162.

The Health Careers Training Project insert is published four times a year as part of the *Health Pathways* Newsletter to increase the amount of information pertaining to the medical field extended to our readers.

For more information regarding the articles in the HCTP insert contact:

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Critical Need...

...an unprecedented shortage of nurses with specialized critical care skills and experience is opening up a wealth of rewarding new opportunities for minority nurses.

By Pam Chwedyk

Do you enjoy working one-on-one with extremely sick patients? Can you cope with a hectic, fast-paced environment where there's always another crisis around the corner? So, you have top-notch observation, assessment and critical thinking skills—an almost intuitive ability to quickly sense what's wrong with a patient and immediately take the right corrective action? If so, the critical care nursing profession needs you—urgently.

Since the mid 1990's, this nursing specialty that focuses on the care of patients in crisis has been experiencing a Code Blue emergency of its own. Within today's much-publicized nursing shortage, critical care is the one area where the need is most acute. Across the country, hospital intensive care units (ICUs), telemetry/step-down units, emergency rooms, operating rooms, post-operative units, burn and trauma units—and even nursing homes and home-care programs—are all scrambling to recruit enough nurses with the specialized skills to meet the needs of an ever-growing influx of critically ill patients who are far sicker than their counterparts of a decade ago.

The greatest need is in the most technologically complex and highly specialized areas, such as cardiovascular ICUs, open heart

recovery units, pediatric and neonatal critical care units (PICUs and NICUs), and cardiac cath labs. In response, hospitals are increasingly employing creative strategies to recruit more critical care nurses—from offering hefty sign-on bonuses to reviving long-dormant in-house training programs.

According to the American Association of the Critical-Care Nurses (AACN), what started as a scattered regional shortage has become a widespread phenomenon. The association reports that the number of requests for temporary and traveling critical care nurses to fill staffing gaps has skyrocketed in every part of the United States over the past year—including increases of 45 percent for adult critical care units, 50 percent for PICUs/NICUs, and 140 percent for ERs.

The only good thing about the shortfall is that it is creating unprecedented opportunities for minority nurses to enter one of the most fulfilling career specialties in health care and make an important contribution toward meeting this critical staffing need. Critical care nursing is a field that offers exceptional rewards—not just an abundance of readily available jobs but also the special satisfaction of helping the most seriously ill patients in the entire medical system recover from life-or-death crises.

Is Critical Care Nursing Right for You?

Experts blame the critical care nursing shortage on a variety of factors, including the impact of managed care, the expansion of acute care beyond traditional ICU settings, and an apparent failure to cultivate enough highly skilled new specialists to replace today's aging critical care nurse population, whose ranks are rapidly thinning due to retirement. "The problem isn't that there aren't enough nurses out there," explains Justine Medina, R.N., M.S., clinical practice specialist for the AACN. "This is a specialty nursing shortage—a lack of nurses with the specific critical care experience and expertise to transition into these specialized roles."

But, having the requisite education and experience may not be enough to ensure a successful career in this specialty. Critical care nursing also requires a special type of personality. Be warned:

This field is not for everybody.

"Even though nurse-to-patient ratios in ICUs are much lower than in regular Med/Surg units, those patients are really, really sick," says Franklin Shaffer, R.N., Ed.D., a former critical care nurse

who is now vice president of education and professional development for a traveling nurse

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agency, Cross Country Staffing, of Boca Raton, Fla. “Often they have multiple system failures, and they have a tube in every orifice, plus some type of apparatus monitoring all their vital signs. So, you’re not just taking care of the patient, you’re also taking care of all this sophisticated equipment. It’s a high-tech, high-stress area where you’re constantly bombarded with changes in the patient’s condition and all the parameters can shift very rapidly.”

Because one-to-one ratios, and even two-nurses-to-one-patient ratios, are not uncommon in ICUs, critical care nurses are constantly busy at their patients’ bedsides and are under never-ending pressure.

“You’re just moving, moving, moving, and you’ve got no time to think, no time to look things up—you just have to *know*,” says Kay Jelton, R.N., nursing resources director for Sutter Roseville Medical Center in the Sacramento, Calif. area. The medical center temporarily had to convert one of its two ICUs into a step-down unit in 1997 because of a nursing staff shortage. “You have to have very strong assessment skills, know when something’s wrong with the patient or the equipment and troubleshoot it *immediately*—and enjoy that.”

“It’s very intense environment,” she continues. “You have to be comfortable with conflict and able to accept constantly changing priorities. There are some nurses who just aren’t going to be comfortable with this, ever. But

there are other nurses who rally with that and love the environment.”

One minority nurse who thrives in this challenging atmosphere is Mona Steele, R.N. “On a regular nursing floor, where you may have five to seven patients during an eight-hour shift, there isn’t enough time to get closely involved with your patient,” says Steele, a traveling critical care nurse for Cross Country Staffing who specialized in

open heart ICUs. “In critical care, you get to concentrate totally on the whole patient in a holistic healing process. I like that closeness—I’m a real patient-care person. And, there’s always something new every day. It’s a fast pace, but you learn so much. It really challenges your curiosity.”

Reynaldo Rivera, CCRN, CNAA, director of critical care nursing for New York City’s Brooklyn Hospital, also feels strongly that the positive aspects of this career far outweigh the downside. “Even though it’s stressful, critical care nursing is rewarding, because you save lives every day,” he maintains. “When people ask me what I do for a living, I tell them, ‘I save lives.’”

Culturally Competent Critical Care

Because their specialty involves caring for exceptionally sick people, some of whom may be

dying, critical care nurses also must be adept at caring for the emotional needs of patients’ families and be able to handle end-of-life issues sensitively. It is here that minority nurses ultimately can make their most significant contribution to critical care practice.

“A minority nurse caring for a critically ill minority patient is so much more attuned to the patient’s needs than someone who has never experienced that culture,” Shaffer believes. “For example, their special knowledge of the culture’s values and belief systems can help them guide a dying patient toward a more peaceful death. Then, there are the culturally diverse dietary and nutritional issues, which are important when you’re caring for patients holistically.”

The AACN’s Medina agrees that when patients are this seriously ill, the need for culturally competent care becomes more important than ever. “In critical care, the specific needs of the individual patient must drive the practice,” she says. “If you have a minority patient with unique cultural needs, the nurse should be competent to recognize and discuss those needs. From my

own experience as a Hispanic nurse, I think minority and ethnic nurses who have very strong ties with their communities can really help educate other members of the critical care team

who don’t have that unique perspective.”



Experience Preferred— But Not Necessary

While minorities are estimated to make up only about 10% of the critical care nurse population, the crucial need for more of these specialists is opening the door for nurses of diverse races and backgrounds to make inroads into the field. In fact, there's never been a better time for new or career-changing minority nurses to get into critical care.



Traditionally, most hospitals have preferred to hire nurses with prior critical care experience—a Catch-22 that often made it difficult for newcomers to land their first jobs. But today, many facilities are so eager to fill critical care staffing shortages that they are welcoming promising new graduates and helping them acquire the necessary expertise by providing internships, externships, and other training programs.

Sutter Roseville, for example, now offers an intensive training regimen for its critical care new hires. Says Jelton, “Although we do prefer some sort of relevant background so that they know what they’re getting into and that they really like this type of nursing, we will train nurses with no critical care experience. We put them through a three-day basic cardiac monitoring course, where they learn how to read the rhythm strips, how to intervene, and how to work with pacemakers.

“Then they go into a six-week, full-time critical care training program, plus a three- or four-

month orientation. This training is individualized, based on the needs of each nurse—some people progress very quickly while others need more time.”

At other facilities, such as Brooklyn Hospital, where budget cuts have severely limited training resources, newcomers who can show a strong proactive commitment to acquiring critical care skills on their own have a definite edge.

“When I interview a new grad, I want people who show they have initiative—people who have already taken some classes in basic cardiac life support, advanced cardiac life support, IV and EKG,” says Rivera. “I also look for people with good technology skills, because everything in critical care is going to computerization.”

He points out, however, that the experience-vs.-training debate remains controversial. “My feeling is that you can’t just put a new person into the ICU right away—you need to start them in a step-down unit first. It takes a while to develop the critical thinking skills that are necessary in acute care. You can’t convert a Med/Surg nurse to an ICU nurse with just an orientation.”

Still, the more critical care education and knowledge an inexperienced candidate can bring to the table in advance, the better. “If a person is still in nursing school, they should take advantage of any opportunities they can to

learn about critical care and acquire those skills,” emphasizes Dr. Laura Kimble, coordinator of the critical care graduate-level nursing program at Emory University in Atlanta. “For example, Emory has a critical care elective that our students take between their junior and senior year. They get to work in actual critical care settings, and it has been an excellent way of helping our new graduates transition into positions in the field.”

In addition to the specialized classes mentioned above, Kimble also advises potential critical care nurses to take courses on physiology and pathophysiology. “This is important because you have to really understand the rationale for your decisions and why you’re doing the type of interventions you’re doing,” she explains. “Areas like hemodynamics, hemodynamic modeling and mechanical ventilation would also be good technical things to learn.”

Critical Resources



From continuing education programs and professional certifications to mentorships and networking, other resources to help nurses develop themselves into specialized critical care experts abound.

“Many cities, particularly the larger ones, have critical care consortiums and local AACN chapters,” Kimble says. “Both students and current nurses who

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want to move into the field could be involved in that chapter and take continuing education courses. So, when they go to apply for their first job, they can demonstrate their interest in critical care and their knowledge of the current issues.”

Melody Hopkins, R.N., a burn unit critical care nurse at Parkland Health and Hospital Systems in Dallas, recommends reading critical care journals to keep up with the latest technological issues and best practices. “There are some good specialized magazines that focus on critical care, just like ER nursing has its own journals.”

Networking with experienced critical care nurses and learning from their expertise is something Medina can’t recommend highly enough. “AACN doesn’t have a specific mentoring program, but some of our chapters do,” she notes. “There are lots of ways to communicate with other nurses—discussion databases, listservers. Even practicing critical care nurses are looking for ways to help new people enter the field—so they can retire.”

She also offers some insider’s advice of her own: “If you’re sure this is what you want to do, then go after it—because the opportunities will be everywhere. Critical care nursing comes in every flavor imaginable—neuro, renal, trauma, transplant, etc. If the jobs are not happening at one particular hospital, just open up a newspaper and you’ll see hundreds of jobs. The shortage is not going to go away and experienced people are hard to find.”

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(*High School*, from page 1)

As you select a college, remember that just as in high school, a good liberal arts education is a key ingredient to becoming a physician. You’ll need a strong foundation in mathematics and the sciences that relate most to medicine: biology, general chemistry, organic chemistry, and physics. But, it’s important for your college experience to be broad. Taking courses in the humanities or liberal arts will help you prepare for the “people” side of medicine.

When Should I Be Ready to Apply to Medical School?

Most people who apply to medical school do so at the end of their junior year in college and begin their medical studies after graduation. Others finish college and work for several years before beginning their medical education. Still others participate in “early admissions” or other collaborative programs between undergraduate colleges and medical schools, through which students with a demonstrated level of maturity and academic achievement can proceed to medical education at an accelerated pace.

How Do I Apply for Medical School, and What Will the Schools Look for in My Applications?

Your college or university premedical advisor can help you through the application process. Medical schools will evaluate you on your college grades, extracurricular activities, and personal characteristics. Most schools also require you to take the Medical College Admission Test (MCAT), which analyzes your knowledge of the basic sciences, your reading and writing abilities, and your problem-solving skills.

Is Getting into Medical School as Tough as They Say?

No question about it - medical schools are looking for the finest minds and the most motivated students who have a strong and demonstrated interest in working with people. It takes a special type of person to even dream of a career in medicine and it takes hard work and commitment to make it to medical school. Today, only about one-third of those who apply are accepted.

How Long Does It Take to Get a Medical Education?

Most would say a lifetime. Doctors are always learning as new discoveries are made and new technologies develop. However, it usually takes four years after college to obtain the M.D. degree. After that, you will choose a medical specialty and spend three years or more as a resident physician in a teaching hospital where you train for certification in a specialty and are paid around \$30,000 a year to care for patients.

What Is Medical School Really Like?

One of the important truths is “things that come easily usually aren’t worth much.” Medical school is challenging. If you want to take responsibility for people’s health and well-being, you’ve got to be serious about learning. Once you’ve been accepted, the medical school faculty and staff will do everything they can to help you succeed. In fact, more than 97 percent of entering medical students obtain their M.D. degrees. The curriculum at many medical schools has changed in recent

years. However, here's a quick look at what you can expect during four years of medical school.

During the first two years, you will study the basic sciences - anatomy, biochemistry, physiology, microbiology, pathology, and pharmacology - as well as behavioral sciences. You will also begin learning the fundamental techniques of taking a medical history and examining patients. Next, you will go into the hospital and various clinics to observe and work with experienced doctors and begin to learn how to take care of patients. At this time, you will begin to explore the wide variety of career paths within medicine, such as family practice, internal medicine, surgery, psychiatry, obstetrics and gynecology, and pediatrics.

Your final years are spent continuing your contact with patients and doctors in a clinical setting while taking elective courses.

After medical school you will spend three to seven years in a residency, where you will gain further experience and training in your chosen specialty. You already may have an idea of which specialties interest you; however, it's good to keep an open mind until your third year of medical school.

I've Heard How Expensive Medical School Is. How Much Does It Cost, and Can I Afford It?

Annual tuition and fees at state medical schools in 1994 averaged \$8,161 for state residents and \$17,459 for non-residents. At private schools, tuition and fees

averaged \$22,272. These figures do not include housing or living expenses. But, don't let these costs discourage you. A wide array of grants and loans are available to those who are determined to get a medical education. About 81 percent of medical students borrow money to cover their expenses. Many receive substantial financial assistance through programs that provide loans guaranteed by the federal government.

You will need to plan your budget carefully however, so that you don't end up with more debt than is necessary. Once you have been accepted to a medical school, work with the school's financial aid officer to develop the best package to meet your needs.

I'm Interested! How Can I Get More Information About Medical Careers and Schools?

If you want more information about colleges, medical schools, and careers, contact your high school guidance counselor or science teachers. Some schools hold "college fairs," where you can meet representatives from a number of colleges. Also, consult the many useful books at your school, local library, and bookstores.

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grounds, no matter where your career path takes you. What's more, they've become important mesh in the nation's safety net for the uninsured, especially during a time when welfare reform has cut Medicaid enrollment, and funding cutbacks are crippling academic medical centers.

Editor's note: To learn more about starting and operating a student-run free clinic, visit Jeffrey Tom's Web site: members.xoom.com/StudClinics. If you currently operate a student-run free clinic, Tom would like to hear from you. Contact him through his Web site, or e-mail him at jtom01@emerald.tufts.edu.

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